

CLAIMS

What is claimed is:

- (1) An injection device, comprising:
- a substantially cylindrical barrel;
 - 5 a needle cannula connected to an end of said barrel;
 - a holder defining an enclosure, said barrel extending at least partially within said enclosure and being axially movable with respect to said holder;
 - a shield positioned about at least a portion of said barrel and
 - 10 operably connected to said holder, said shield being axially movable with respect to said holder between a retracted position, wherein said needle cannula is exposed, to an extended position, wherein said needle cannula is enclosed by said shield;
 - a spring at least partially compressed within said holder,
 - 15 operably biased between said holder and said shield and urging said shield towards said extended position;
 - a first stop member on said shield;
 - a second stop member on said holder and engageable with said first stop member when said shield is in said retracted position, the
 - 20 force of said at least partially compressed spring being insufficient to cause disengagement of said first and second stop members; and
 - a third stop member on said shield distally spaced from said first stop member; and said barrel being operationally coupled to said shield such that sufficient axial movement of said barrel in the direction of said
 - 25 needle cannula causes axial movement of said shield relative to said holder, further compressing said spring and causing disengagement of said first and second stop members, said spring then driving said shield to said extended position.

(2) An injection device as defined in Claim 1 wherein said shield is telescopically received within said holder and said first stop member extending radially outwardly from said shield.

5 (3) An injection device as defined in Claim 2 wherein said second stop member extends radially inwardly from an internal surface of said holder.

(4) An injection device as defined in Claim 3, wherein said
10 second stop member is adjacent a distal end of said holder.

(5) An injection device as defined in Claim 4, wherein said first stop member is adjacent a distal end of said shield.

15 (6) An injection device as defined in Claim 5, wherein said third stop member is larger in diameter than said first stop member.

(7) An injection device as defined in Claim 1, including an end fitting slidably mounted to said holder and engaging a proximate end of said
20 barrel.

(8) An injection device as defined in Claim 1, wherein said shield is positioned at least partially within said holder, said holder comprising an elongate, generally tubular body including a detent engageable with said third stop member, said third stop member being
25 positionable between said detent and said second stop member when said shield is in the extended position, and said detent preventing said shield from being retracted from said extended position and exposing said needle cannula.

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(9) An injection device as defined in Claim 8, wherein said detent is radially deflectable with respect to said holder.

(10) An injection device as defined in Claim 1, wherein said
5 barrel includes a flange, said flange being slidably retained by said holder.

(11) An injection device as defined in Claim 1, wherein said holder comprises an elongate, generally tubular body having proximal and distal end portions, said proximal end portion including a radially outwardly
10 extending flange, said distal end portion including said second stop member.

(12) A medical device comprising:
a holder comprising an elongate body, an elongate enclosure
15 defined by said body, and said holder having proximal and distal open ends;
a syringe including a barrel, a needle cannula secured to said barrel, a stopper slidably positioned within said barrel, and a plunger rod engaging said stopper, said syringe being coupled to said holder and positioned within said enclosure such that said needle cannula extends
20 beyond said distal open end, said syringe being axially slidable within said enclosure;

a shield coupled to said holder and axially movable relative to said holder between a retracted position, wherein said needle cannula is at least partially exposed, and an extended position wherein said shield
25 encloses said needle cannula;

a spring at least partially compressed and biased between said holder and said shield urging said shield towards the extended position;
and

a stop member mounted to said holder adjacent to said distal
30 open end, said stop member being releasably engageable with said shield

when said shield is in the retracted position, said syringe being operably coupled to said shield, such that axial movement of said syringe towards said distal end of said holder causes axial movement of said shield and disengagement of said shield and said stop member and said spring then
5 driving said shield from said retracted to said extended position enclosing said needle cannula.

(13) A device as described in Claim 12, wherein said holder and said shield are generally cylindrical, said shield being at least partially
10 positioned within said holder enclosure.

(14) A device as defined in Claim 13, wherein said shield includes a radially outwardly extending stop member adjacent its distal end, and said stop member of said holder extending radially inwardly, said
15 holder further including a radially inwardly extending detent, said detent located adjacent said distal open end of said holder spaced proximally of said holder stop member, said radially outwardly extending stop member of said shield being retained by said radially inwardly extending stop member of said holder under the force of said spring, but movable past said radially
20 inwardly extending stop member under a force exceeding the force of said spring, said shield including a further radially outwardly extending stop member capable of moving past said detent under the force of said spring and being retained by said detent, said detent including a surface engageable with said further radially outwardly extending stop member for preventing
25 said shield from moving towards said proximal open end of said holder when in said extended position..

(15) A device as defined in Claim 14, wherein said further radially outwardly extending stop member is larger in diameter than said
30 radially outwardly extending distal stop member.

(16) A shield system comprising:

a holder comprising an elongate body, an elongate enclosure defined by said body, and said holder including proximal and distal open
5 ends;

an elongate tubular shield coupled to said holder and positioned at least partially within said holder enclosure, said shield including open proximal and distal ends and a passage extending therethrough, and said shield being slidable within said holder enclosure
10 between a retracted position and an extended position wherein said shield extends beyond said distal open end of said holder;

a spring at least partially compressed located within said enclosure operably biased between said holder and said shield and urging said shield towards said extended position;

15 a stop member on said holder adjacent said distal open end and engageable with said shield, said stop member maintaining said shield in said retracted position against the compressive force of said spring and releasing said shield upon sufficient axial displacement of said shield; and

20 a detent mounted to said holder and engageable with said shield when said shield is in said extended position preventing retraction of said shield from said extended position.

(17) A shield system as defined in Claim 16, wherein said shield includes a radially outwardly extending stop member engageable with said
25 first detent.

(18) A shield system as defined in Claim 17, wherein said detent being located adjacent said distal open end of said holder and being axially spaced from said stop member, said stop member of said shield being
30 movable past said resilient detent upon movement of said shield to said

extended position and engageable with said detent preventing uncoupling of said shield from said holder, said stop member of said shield being engageable with said detent upon movement of said shield from the extended position towards the retracted position.

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(19) A system as defined in Claim 18, wherein said shield includes a second radially outwardly extending stop member adjacent said proximal end of said shield engageable with said stop member on said holder.

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(20) A system as defined in Claim 19, wherein said further radially extending stop member is smaller in diameter than said stop member which is engageable with said detent.